

Amendments to the Claims

1. (Currently Amended) An image sensor comprising:

a shift register, formed by a dynamic logic circuit, for sequentially selecting a row or a column of ~~the~~ a two-dimensional imaging unit,

~~wherein the said~~ shift register ~~includes comprising:~~

a plurality of stages of unit registers, each holding a signal,

a plurality of first reset circuits ~~and a plurality of second reset circuits, the first reset circuits correspond~~ corresponding to the unit registers, and each of the first reset circuits ~~resets being operable to reset~~ an input signal of a back unit register when the unit register corresponding to the first reset circuit outputs a high level signal, said back unit register being arranged in back of the corresponding unit register in a shifting direction, and

a plurality of second reset circuits corresponding ~~the second reset circuits correspond~~ to the unit registers, and each of the second reset circuits ~~resets being operable to reset~~ an input signal of a front unit register when the unit register corresponding to the second reset circuit outputs a high level signal, said front unit register being arranged in front of the corresponding unit register in the shifting direction;

wherein each first reset circuit has a first transistor which is on when the output signal of the corresponding unit register is at high level, and drives an input signal line of the back unit register to a low level via the first transistor; and

wherein each second reset circuit includes a second transistor which is on when an output signal of the corresponding unit register is at high level, and drives an input signal line of the front unit register to the low level via the second transistor.

2. (Currently Amended) The image sensor according to Claim 1,

wherein the front unit register is one of the unit registers which are arranged at least two stages forward of the unit register corresponding to each second reset circuit in the shifting direction.

3. (Canceled).

4. (Currently Amended) The image sensor according to ~~Claim 3~~ Claim 1,

wherein the front unit register is any one of the unit registers which are arranged at least two stages forward from the corresponding unit register in the shifting direction.

5. (Currently Amended) ~~The~~ An image sensor, comprising a bidirectional shift register, formed by a dynamic logic circuit, for sequentially selecting a row or a column of ~~the~~ a two-dimensional image sensor,

wherein the bidirectional shift register includes a plurality of stages of unit registers, each holding a signal, a plurality of first reset circuits and a plurality of second reset circuits,

the first reset circuits correspond to the unit registers, and each of the first reset circuits
i)resets an input signal of a back-forward unit register when the unit register corresponding to the first reset circuit outputs a high level signal in a forward shifting operation, said back-forward unit register being arranged in back of the corresponding unit register in forward shifting direction, and
ii)resets an input signal of a front-backward unit register when the unit register corresponding to the first reset circuit outputs a high level signal in a backward shifting operation, said front-backward unit register being arranged in front of the corresponding unit register in backward shifting direction,

the second reset circuits correspond to the unit registers, and each second reset circuit
i)resets an input signal of a front-forward unit register when the unit register corresponding to the second reset circuit outputs a high level signal in a forward shifting operation, said front-forward unit register being arranged in front of the corresponding unit register in forward shifting direction, and
ii)resets an input signal of a back-backward unit register when the corresponding unit register outputs a high level signal in a backward shifting operation, said back-backward unit register being arranged in back of the corresponding unit register in backward shifting direction.

6. (Original) The image sensor according to Claim 5,

wherein the front-forward unit register is any one of the unit registers which are arranged at least two stages forward, from the unit register corresponding to each second reset circuit in shifting direction, and

the front-backward unit register is any one of the unit registers which are arranged at least forward, from the unit register corresponding to each first reset circuit in shifting direction.

7. (Original) The image sensor according to Claim 5,

wherein the bidirectional shift register includes a plurality of forward connecting transistors, each connecting input and output of said plurality of stages of the unit registers in forward direction in a forward shifting operation and a plurality of backward connecting transistors, each connecting input and output of the unit registers in backward direction in a backward shifting operation,

each first reset circuit i)has a first transistor which is on when an output signal of the corresponding unit register is at high level, said first transistor being connected to the ground line, ii)connects, via the forward connecting transistor, the input signal line of a back-forward unit register and the first transistor, and iii)connects, via the backward connecting transistor, the input signal line of the front-backward unit register and the first transistor, and

each second circuit i)has a second transistor which is on when an output signal of the corresponding unit register is at high level, said second transistor being connected to the ground line, ii)connects, via the forward connecting transistor, the input signal line of the front-forward unit register and the second transistor, and iii)connects, via the backward connecting transistor, the input signal line of the back-backward unit register and the second transistor.

8. (Original) The image sensor according to Claim 7,

wherein the front-forward unit register is one of the unit registers which are arranged at least two stages forward in shifting direction from the unit register corresponding to each second reset circuit, and

the front-backward unit register is one of the unit registers which are arranged at least more than

two stages forward in shifting direction from the unit register corresponding to the first reset circuit.

9. (Currently Amended) A driving method for an image sensor, the image sensor comprising a shift register, formed by a dynamic logic circuit, for sequentially selecting a row or a column of ~~the~~ a two-dimensional image sensor; ~~the shift register includes~~ including a plurality of stages of unit registers, ~~and the said driving method comprises~~ comprising:

a shifting step of shifting the shift register by one stage;

a first reset step of resetting an input signal of a back unit register, ~~said the~~ back unit register being arranged in back of a unit register which outputs a high level signal by shifting one stage in a shifting direction; ~~and~~

a second reset step of resetting an input signal of a front unit register, ~~said the~~ front unit register being arranged in front of a unit register which outputs a high level signal by shifting one stage in the shifting direction;

turning on a first transistor in each first reset circuit when the output signal of the corresponding unit register is at high level, and driving an input signal line of the back unit register to a low level via the first transistor; and

turning on a second transistor in each second reset circuit when an output signal of the corresponding unit register is at high level, and driving an input signal line of the front unit register to the low level via the second transistor.

10. (Currently Amended) A driving method for an image sensor, the image sensor comprising a shift register, formed by a dynamic logic circuit, for sequentially selecting a row or a column of ~~the~~ a two-dimensional image sensor; the shift register including a plurality of stages of unit registers, a plurality of forward connecting transistors which connect the input and output of the plurality of unit registers in a forward shifting operation, and a plurality of backward connecting transistors which connect the input and output of the plurality of unit registers in a backward shifting operation, and the method comprising:

a setting step of setting, each forward connecting transistor as on and each backward

connecting transistor as off, in a forward shifting operational mode;

a shifting step of shifting the shift register by one stage, and

a first reset step of resetting an input signal of a back unit register, said back unit register being arranged in back, in shifting direction, of the unit register which has outputted a high level signal by shifting one stage; and

a second reset step of resetting an input signal of a front unit register, said front unit register being arranged in front, in shifting direction, of the unit register which outputs a high level signal by shifting one stage.

11. (Currently Amended) A camera comprising an image sensor,

~~the image sensor comprising: the shift register, formed by the dynamic logic circuit, for sequentially selecting a row or a column of the two-dimensional image sensor; the shift register including a plurality of stages of unit registers, each holding a signal, a plurality of first reset circuits and a plurality of second reset circuits,—~~

~~wherein the first reset circuits correspond to the unit registers, and each of the first reset circuits resets the input signal of the unit register when the corresponding unit register to the first reset circuit outputs a high level signal, said unit register being arranged in back of the corresponding unit register in shifting direction, and ————~~

~~the second reset circuits correspond to the unit registers and each of the second reset circuits resets the input signal of the unit register when the corresponding unit register to the second reset circuit outputs a high level signal, said unit register being arranged in front of the corresponding unit register in shifting direction~~

a shift register, formed by a dynamic logic circuit, for sequentially selecting a row or a column of a two-dimensional imaging unit,

said shift register comprising:

a plurality of stages of unit registers, each holding a signal,

a plurality of first reset circuits corresponding to the unit registers, and each of the

first reset circuits being operable to reset an input signal of a back unit register when the unit register corresponding to the first reset circuit outputs a high level signal, said back unit register being arranged in back of the corresponding unit register in a shifting direction, and a plurality of second reset circuits corresponding to the unit registers, and each of the second reset circuits being operable to reset an input signal of a front unit register when the unit register corresponding to the second reset circuit outputs a high level signal, said front unit register being arranged in front of the corresponding unit register in the shifting direction;

wherein each first reset circuit has a first transistor which is on when the output signal of the corresponding unit register is at high level, and drives an input signal line of the back unit register to a low level via the first transistor; and

wherein each second reset circuit includes a second transistor which is on when an output signal of the corresponding unit register is at high level, and drives an input signal line of the front unit register to the low level via the second transistor.